

U.S. Patent Application Serial No. 10/601,803
Response filed January 24, 2006
Reply to OA dated October 26, 2005

REMARKS

Claims 1-9 are pending in this application. No amendment is made in this Response. It is believed that this Amendment is fully responsive to the Office Action dated **October 26, 2005**.

Claims 2 and 4-8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the optically active compounds exemplified in the specification (see page 17, 23, 24, 27 and 30), does not reasonably provide enablement for other than those exemplified in the specification. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. (Office Action paragraph no. 1)

The rejection of claims 2 and 4-8 under 35 U.S.C. 112, first paragraph, is respectfully traversed, and reconsideration of the rejection is requested.

In the rejection, the Examiner states that **“there are no teachings how one of ordinary skill in the art can synthesize the compound represented by formula (I) except the compounds exemplified and disclosed from page 36 to page 43 in the specification”** (emphasis added). The Examiner appears to be stating that the claims should be limited to the **“optically active compounds exemplified in the specification.”**

Applicant respectfully disagrees that there are no teachings to enable the synthesis of these compounds. Pages 36-45 of the specification give **general production methods** (production

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methods 1-8) for the compounds of the general formula (I). In production methods 1-6 and 7, A² represents a 1,4-phenylene group; in production method 7, A² represents a 1,4-cyclohexylene group. In production methods 1-4 and 6-8, E² represents a single bond; in production method 5, E² represents a-OCO-.

Moreover, the paragraph on page 45, line 10, clearly states that “compounds **other than those described above** can be produced by combinations of the above techniques and combinations with existing techniques” (emphasis added). Applicant submits that one of skill in the art can readily substitute the appropriate reagents into production methods 1-8 to achieve the full scope of the claims.

The Examiner states that: “the present invention only teaches the compounds having linking groups such as -C≡C-, -OCO- and a single bond for Z¹ and 1,4-phenylene and 1,4-cyclohexylene for A¹ and A².” However, the fact that the cited groups are the only groups **exemplified** does not mean that there is no **teaching** for these groups; these groups are clearly taught in the specification and claims. Moreover, the issue in this rejection is **enablement**, and Applicant submits that the chemical substitutions in the general production methods to provide these groups can be easily made by those of skill in the art.

For example, group A² can be the heterocyclic ring when a heterocyclic ring derivative is used as a starting material in the production methods 1-8.

Examples of a heterocyclic ring derivative include 2-phenylpyridine (CAS number: 1008-89-

5, R¹: a hydrogen atom, A¹: a 1, 4-phenylene group, and Z¹: a single bond); 2-(p-tolyl)pyridine (CAS number: 4467-06-5, R¹: a methyl group, A¹: a 1, 4-phenylene group, and Z¹: a single bond); 5-hydroxy-2-phenyl-1,3-dioxane (CAS number: 1708-40-3, R¹: a hydrogen atom, A¹: a 1, 4-phenylene group, and Z¹: a single bond); and so on. These heterocyclic ring derivatives are well known to one of ordinary skill in the art.

These heterocyclic ring derivatives are applicable to the production methods 1-8. In the production methods 1-2, 3-4, 5, 6-7, and 8, Friedel-Craft reaction, Williamson etherification reaction, DCC coupling reaction, the alkylation reaction with a Grignard reagent, and the esterification reaction with an acid chloride, are used respectively. These reactions are well known to those of skill in the art and can be easily performed if heterocyclic ring derivatives are used.

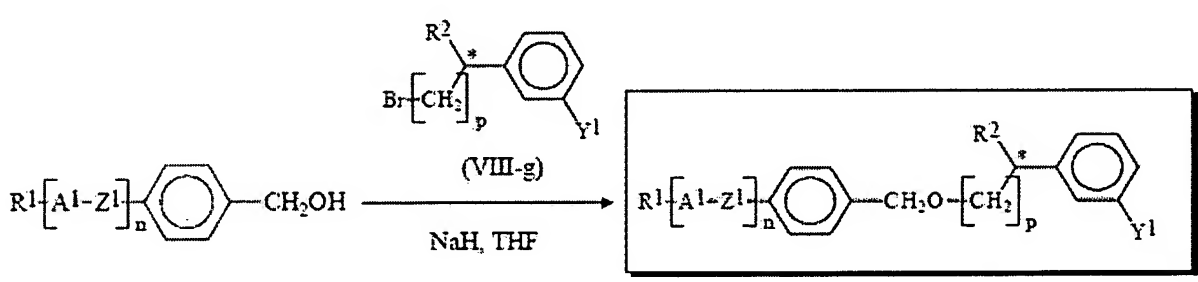
In addition to a heterocyclic ring, A² can be a condensed ring when a condensed ring derivative is used as a starting material in the production methods 1-8. Examples of a condensed ring derivative include 2-phenylnaphthalene (CAS number: 612-94-2, R¹: a hydrogen atom, A¹: a 1, 4-phenylene group, and Z¹: a single bond); 2-phenyl-1,2,3,4-tetrahydronaphthalene (CAS number: 29422-13-7, R¹: a hydrogen atom, A¹: a 1, 4-phenylene group, and Z¹: a single bond); and so on. These condensed ring derivatives are well known and applicable to the production methods 1-8 in analogy with a heterocyclic ring derivative.

Accordingly, by using the production methods 1-8 in the present specification and well-known heterocyclic ring derivatives and condensed ring derivatives, one ordinary skilled in the art can make the optically active compounds of the present invention whose A¹ represents the same

meanings as in the general formula (I).

Similarly, compounds of the present invention with other linking groups can be readily obtained, such as when E^1 in the compounds is $-OCH_2-$, $-COCH_2-$, $-COOCH_2-$, and $-CH_2CH_2-$. For example, E^1 can be $-CH_2O-$, $-CH_2COO-$, and $-CH_2OCO-$.

For example, the case where E^1 is $-CH_2O-$ can be made by the following Reaction scheme, which corresponds to the production method 3, except that a benzyl alcohol derivative is used as a starting material.



The above benzyl alcohol derivative can be prepared by reacting the compound represented by the general formula (VIII-a) in page 36 with the reactant prepared from a phosphorus oxychloride in DMF followed by reducing the formyl group. This reaction is called the Vilsmeier-Haack reaction, and it is well known to one ordinary skilled in the art.

The other claimed groups can similarly be prepared by straightforward substitutions of reagents in the production methods disclosed in the present specification.

The Examiner goes on to state: "Without knowledge of the properties of species commensurate in scope with the claims, Applicants invite the skilled artisan to first synthesize and

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then test a species before a **use** can be undue [sic]" (emphasis added). The Examiner appears to be implying that some compounds of claim 2 might not be particularly useful. This comment by the Examiner appears to be with regard to **utility**, not **enablement**. However, Applicant notes that claim 2 does not, in itself, require any particular properties of the claimed compounds.

In response to this potential utility rejection, Applicant submits that the specification clearly states a utility for the claimed compounds. The compounds of the present invention can be used as stated in the specification, and there is no issue of either utility or enablement regarding their use.

Therefore, the present specification provides enablement for the optically active compounds of claim 2, and for dependent claims 4-8. Withdrawal of the rejection is respectfully requested.

Regarding allowable subject matter. (Office action paragraph no. 3)

The Examiner has indicated that the optically active compounds exemplified in the specification are allowable over the prior art. Given Applicant's traversal of the rejection under 35 U.S.C. 112, first paragraph, Applicant submits that the claims should be allowable with their present scope, and no amendment to the claims has been made.

Regarding withdrawn claims 1, 3 and 9-22.

Applicant has previously elected Group II, claims 2-12, for prosecution in this application, and claims 3 and 9-12 are withdrawn as a result of an election of species requirement. The Examiner

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has indicated that the optically active compounds exemplified in the specification are allowable over the prior art. Applicant therefore respectfully submits that claims 3 and 9-12 are entitled to examination. Moreover, Applicant submits that if claim 2 is allowable, all of claims 2-12 should be allowable.

Applicant also respectfully requests rejoinder of claims 13-22, which are all dependent from claim 2, and which should be allowable if claim 2 is allowable.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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